

What is claimed is:

1. An isolated polynucleotide comprising:

(a) SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56 or 57;

(b) a fragment of at least 15 contiguous nucleobases of SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56 or 57,

(c) a nucleic acid sequence which, due to degeneracy in genetic coding, comprises variations in nucleotide sequence as compared to SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56 or 57, but which still encodes the same protein; or

(d) a nucleic acid sequence which hybridizes under stringent conditions to an antisense sequence of SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56 or 57.

2. An antisense oligonucleotide which hybridizes to a polynucleotide of claim 1.

3. A vector comprising the polynucleotide of claim 1.

4. A host cell expressing the vector of claim 3.

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A2

5. A method for producing a CSG polypeptide comprising culturing the host cell of claim 4 under conditions which promote expression of the polynucleotide and isolating polypeptide expressed in the cells.

5 6. A method for producing a cell expressing a CSG polypeptide comprising transforming or transfecting a cell with the vector of claim 3 so that the cell, under appropriate culture conditions, expresses a CSG polypeptide.

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7. A polypeptide encoded by the polynucleotide of claim 1.

8. An antibody which is immunospecific for the polypeptide of claim 7.

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15 9. A CSG for diagnosing colon cancer comprising a polynucleotide of claim 1 or a polypeptide encoded thereby.

10. A method for diagnosing the presence of colon cancer in a patient comprising:

(a) determining levels of a CSG of claim 9 in cells, tissues or bodily fluids in a patient; and

(b) comparing the determined levels of CSG with levels of a CSG of claim 9 in cells, tissues or bodily fluids from a normal human control, wherein a change in determined levels of CSG in said patient versus normal human control is associated with the presence of colon cancer.

11. A method of diagnosing metastases of colon cancer in a patient comprising:

(a) identifying a patient having colon cancer that is not known to have metastasized;

(b) determining levels of a CSG of claim 9 in a sample of cells, tissues, or bodily fluid from said patient; and

(c) comparing the determined CSG levels with levels of a CSG of claim 9 in cells, tissue, or bodily fluid of a 5 normal human control, wherein an increase in determined CSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

12. A method of staging colon cancer in a patient having colon cancer comprising:

10 (a) identifying a patient having colon cancer;

(b) determining levels of a CSG of claim 9 in a sample of cells, tissue, or bodily fluid from said patient; and

(c) comparing determined CSG levels with levels of a 15 CSG of claim 9 in cells, tissues, or bodily fluid of a normal human control, wherein an increase in determined CSG levels in said patient versus the normal human control is associated with a cancer which is progressing and a decrease in the determined CSG levels is associated with a 20 cancer which is regressing or in remission.

13. A method of monitoring colon cancer in a patient for the onset of metastasis comprising:

(a) identifying a patient having colon cancer that is not known to have metastasized;

25 (b) periodically determining levels of a CSG of claim 9 in samples of cells, tissues, or bodily fluid from said patient; and

(c) comparing the periodically determined CSG levels with levels of a CSG of claim 9 in cells, tissues, or 30 bodily fluid of a normal human control, wherein an increase in any one of the periodically determined CSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

14. A method of monitoring a change in stage of colon cancer in a patient comprising:

- (a) identifying a patient having colon cancer;
- (b) periodically determining levels of a CSG of claim 9 in cells, tissues, or bodily fluid from said patient; and
- (c) comparing the periodically determined CSG levels with levels of a CSG of claim 9 in cells, tissues, or bodily fluid of a normal human control, wherein an increase in any one of the periodically determined CSG levels in the patient versus the normal human control is associated with a cancer which is progressing in stage and a decrease is associated with a cancer which is regressing in stage or in remission.

15. A method of identifying potential therapeutic agents for use in imaging and treating colon cancer comprising screening molecules for an ability to bind to a CSG of claim 9 wherein the ability of a molecule to bind to CSG is indicative of the molecule being useful in imaging and treating colon cancer.

16. A method of imaging colon cancer in a patient comprising administering to the patient the antibody of claim 8.

17. The method of claim 16 wherein said antibody is labeled with paramagnetic ions or a radioisotope.

18. A method of treating colon cancer in a patient comprising administering to the patient the antibody of claim 8.

19. The method of claim 18 wherein the antibody is conjugated to a cytotoxic agent.

20. A method for identifying compounds which antagonize or agonize the CSG polypeptide of claim 7 comprising:

(a) contacting cells which express the CSG polypeptide of claim 7 or cell membranes expressing the CSG polypeptide of claim 7 with a candidate compound; and

(b) monitoring the cells for changes in CSG polypeptide activities or binding as compared to cells or cell membranes not contacted with the candidate compound.

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21. A CSG polypeptide agonist identified by the method of claim 20.

22. A CSG antagonist identified by the method of claim 20.

15 23. A vaccine comprising a CSG polypeptide or a vector expressing a CSG polypeptide which induces an immune response against the CSG polypeptide in a mammal.

24. A method of inducing an immune response against a CSG polypeptide in a mammal which comprises administering
20 to the mammal the vaccine of claim 23.

25. A method of treating colon cancer in a patient comprising administering to the patient the vaccine of claim 23.